[graphing linear equations][section 20]

(1.)   y = -2x + 3   here is the problem

(i.) y = -2(-2) + 3   (ii.) y = -2(-1) + 3   (iii.) y = -2(0) + 3

(iv.) y = -2(1) + 3   (v.) y = -2(2) + 3

[replace x with -2 thru 2]
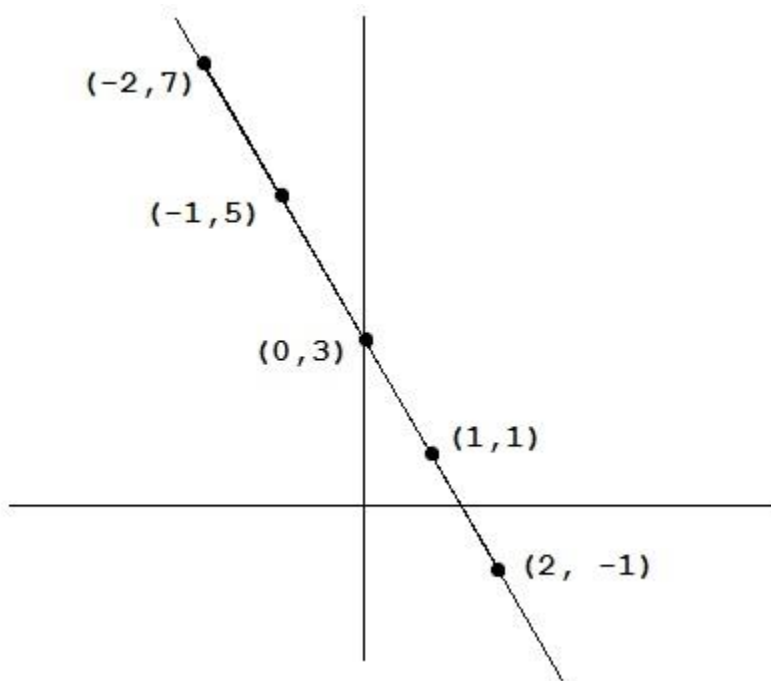
(i.)   y = 7   (ii.)   y = 5   (iii.) y = 3   (iv.)   y = 1

(v.)   y = -1   [multiply, add]

Here is the table:

```
 x | y
___|_____
-2 |  7
-1 |  5
 0 |  3                    Here is the graph:
 1 |  1
 2 | -1
```

(2.) y = x - 5   here is the problem

(i.) y = -2 - 5   (ii.)   y = -1 - 5   (iii.) y = 0 - 5

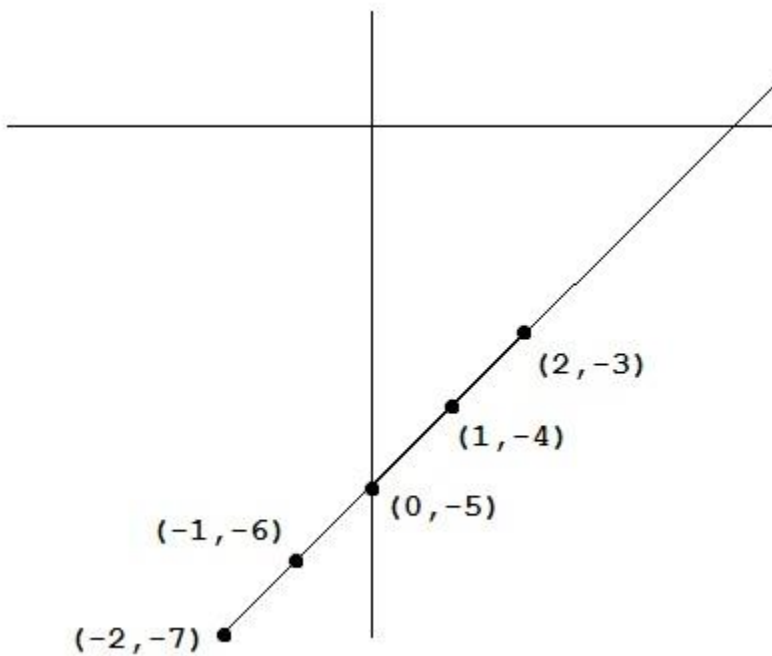(iv.) y = 1 - 5   (v.) y = 2 - 5

[replace x with -2 thru 2]

(i.) y = -7   (ii.) y = -6   (iii.) y = -5

(iv.) y = -4   (v.) y = -3   [subtract]

Here is the table:

```
x  | y
___|____
-2 | -7
-1 | -6
 0 | -5
 1 | -4
 2 | -3
```

Here is the graph:

```
(3.)   x + y = 10                          here is the problem

     -x       -x          subtract x from each side
   _____
         y = -x + 10            subtract

(i.)  y = -(-2) + 10          (ii.)   y = -(-1) + 10

(iii.)  y = (0) + 10        (iv.)   y = -(1) + 10

(v.)    y = -(2) + 10            [replace x with -2 thru 2]

(i.)  y = 12    (ii.)  y = 11   (iii.)   y = 10

(iv.)  y = 9     (v.)    y = 8        [add]

Here is the table:

x | y
__|____
-2| 12
-1| 11
 0| 10
 1|  9
 2|  8

Here is the graph:
```

(-2,12)

(-1,11)

(0,10)

(1,9)

(2,8)

(4.)   2x + y = 4   here is the problem

        -2x   -2x   subtract 2x from each side
     _____
              y = -2x + 4   subtract

  (i.)   y = -2(-2) + 4   (ii.)   y = -2(-1) + 4

(iii.)   y = -2(0) + 4   (iv.)   y = -2(1) + 4

(v.)   y = -2(2) + 4   [replace x with -2 thru 2]

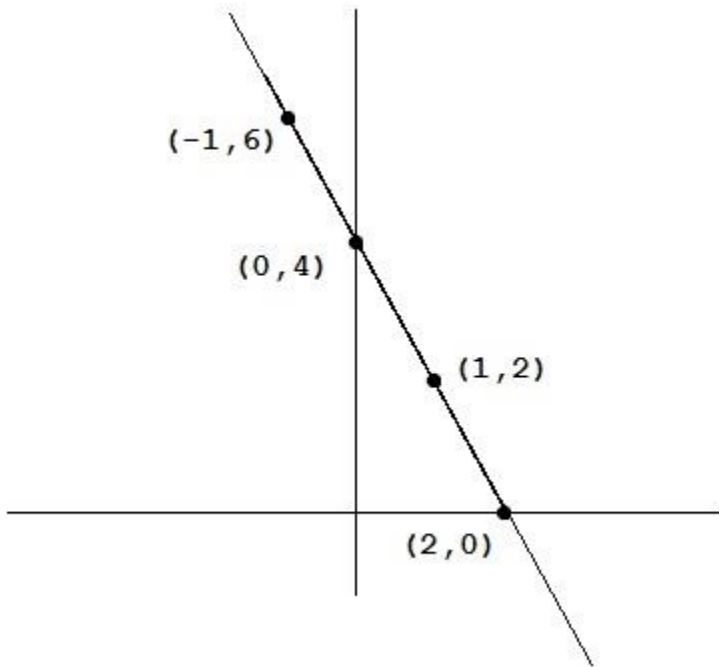(i.)   y = 8   (ii.)   y = 6   (iii.)   y = 4   (iv.)   y = 2

(v.)   y = 0   [multiply, add]

Here is the table:

x | y
___|_____
-2 | 8
-1 | 6

```
0 | 4
1 | 2
2 | 0
```

Here is the graph:

(5.)   2x + 3y = 6   here is the problem

        -2x   -2x   subtract 2x from each side
       _____

            3y = -2x + 6   subtract

            ___   ___   ___
             3   3   3   divide thru by 3

            y = (2/3)x + 2   divide and cancel

(i.) y = (2/3)(-3) + 2   (ii.)   y = (2/3)(0) + 2

(iii.)   y = (2/3)(3) + 2   (iv.)   y = (2/3)(6) + 2

[replace x with -3, 0, 3, & 6]
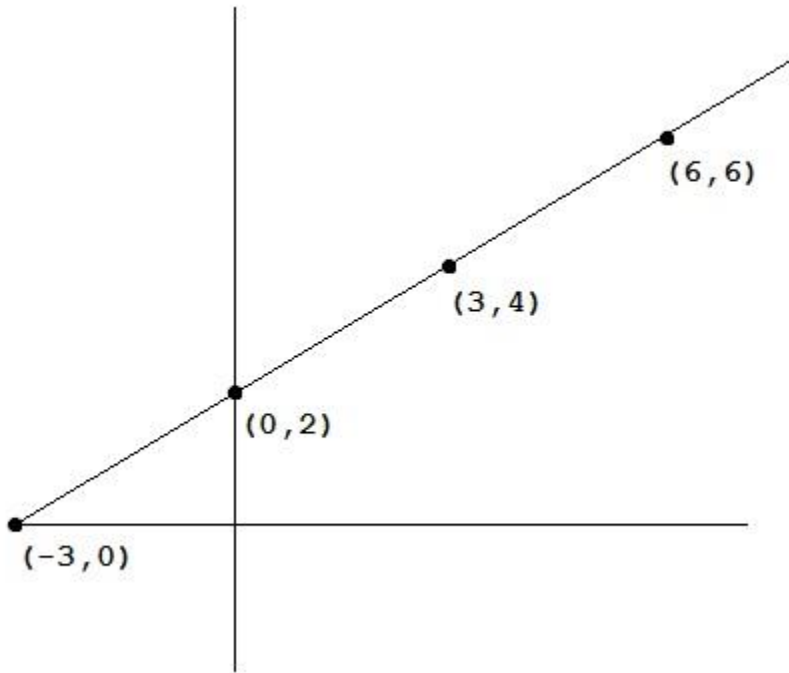
(i.)   y = 0   (ii.)   y = 2   (iii.)   y = 4   (iv.)   y = 6

[multiply & add]

Here is the table:

```
x | y
__|___
-3| 0
 0| 2
 3| 4
 6| 6
```

Here is the graph:

(6.)   3x + 4y = 12   here is the problem

      -3x   -3x   subtract 3x from each side
      _____

            4y = -3x + 12   subtract

            ___   ___ ___
            4   4   4   divide thru by 4

            y = (-3/4)x + 3   divide and cancel

(i.)   y = (-3/4)(-4) + 3   (ii.)   y = (-3/4)(0) + 3

(iii.)   y = (-3/4)(4) + 3   (iv.)   y = (-3/4)(8) + 3

[replace x with -4, 0, 4, & 8]
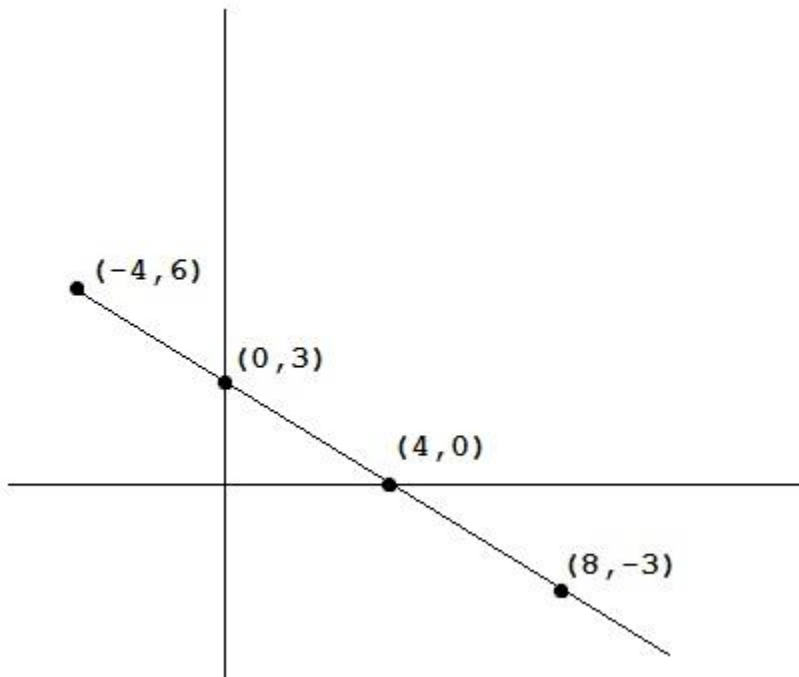
(i.) y = 6   (ii.)   y = 3   (iii.)   y = 0   (iv.)   y = -3

[multiply, add]

Here is the table:

```
  x  |  y
_____|_____
 -4  |  6
  0  |  3
  4  |  0
  8  | -3
```

Here is the graph:

(7.)   2x - y = 4   here is the problem

       -2x + y = -4   multiply thru by -1

```
    + 2x      +2x        add 2x to each side

    _____

        y = 2x - 4                 add

(i.)  y = 2(-2) - 4    (ii.)  y = 2(-1) - 4   (iii.) y = 2(0) - 4

(iv.)   y = 2(1) - 4      (v.) y = 2(2) - 4

[replace x with -2 thru 2]

(i.)  y = -8    (ii.)  y = -6  (iii.)   y = -4

(iv.)  y = -2  (v.)   y = 0      [multiply & add]

Here is the table:

x |  y
__|_____
-2| -8
-1| -6
 0| -4
 1| -2
 2|  0

Here is the graph:
```
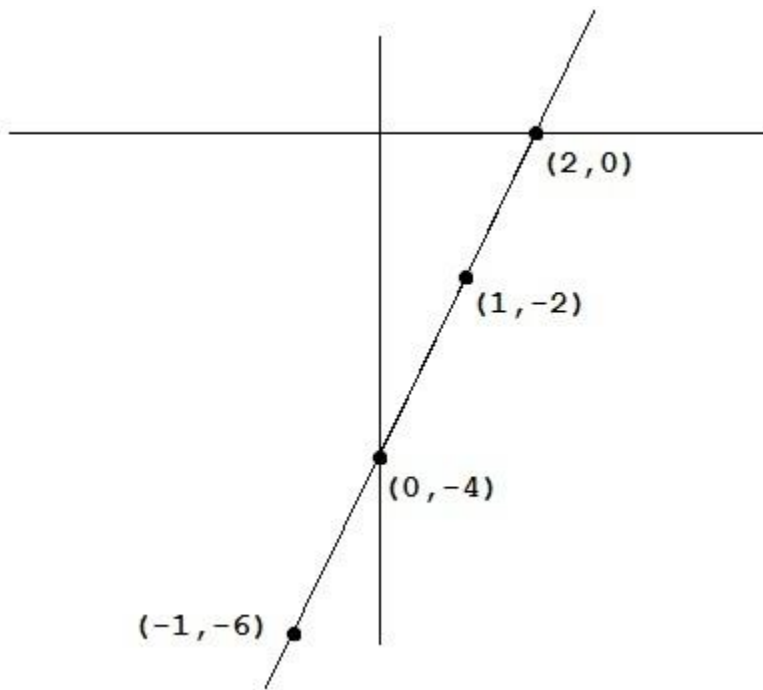
(8.)   y = 5 - x   here is the problem

(i.)   y = 5 - (-2)   (ii.)   y = 5 - (-1)   (iii.) y = 5 - 0

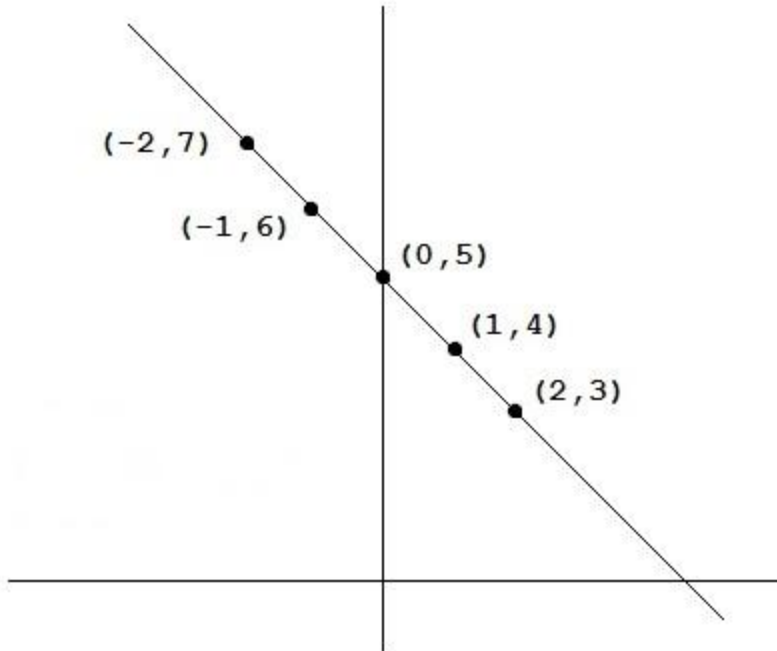(iv.)   y = 5 - 1   (v.)   y = 5 - 2

[replace x with -2 thru 2]

(i.) y = 7   (ii.)   y = 6   (iii.)   y = 5   (iv.) y = 4

(v.)   y = 3   [add and subtract]

Here is the table:

```
x | y
__|____
-2| 7
-1| 6
 0| 5
 1| 4
 2| 3
```

Here is the graph:

(-2,7)

(-1,6)

(0,5)

(1,4)

(2,3)

(9.)   3x - 2y = 0   here is the problem

     -3x + 2y = 0   multiply thru by -1

   + 3x   +   3x   add 3x to each side
   _____
         2y = 3x   add

         ___ ___
          2   2   divide each side by 2

         y = (3/2)x   cancel

(i.) y = (3/2)(-4)   (ii.) y = (3/2)(-2)   (iii.) y = (3/2)(0)

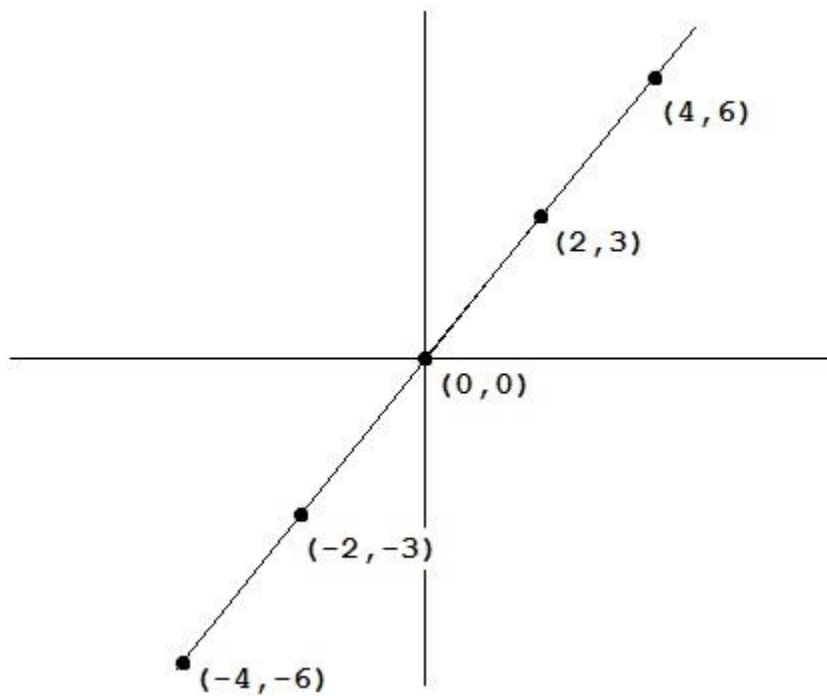(iv.) y = (3/2)(2)   (v.) y = (3/2)(4)

[replace x with -4, -2, 0, 2, & 4]

(i.) y = -6   (ii.) y = -3   (iii.) y = 0 (iv.) y = 3

(v.) y = 6   [multiply]

Here is the table:

```
x | y
__|___
-4| -6
-2| -3
 0|  0
 2|  3
 4|  6
```

Here is the graph:

(10.) x = 3   here is the problem

Here is the table:

```
x | y
__|___
 3|-2
 3|-1
 3| 0
 3| 1
 3| 2          [x is always 3, in x = 3]
```

Here is the graph:

(3,2)

(3,1)

(3,0)

(3,-1)

(3,-2)